



Perinatal Care Matters

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INDUCTION OF LABOR AND THE IMPACT ON OBSTETRIC CARE

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Induction of labor is a widely used intervention on the modern labor and delivery unit. While it follows electronic fetal monitoring and ultrasound in frequency, the use of this procedure has increased from 9.5% in 1990 to 20.6 in 2002-2003. A steady increase in inductions across all gestational ages is evident as well for the ten year period from 1990-2000, including preterm deliveries (less than 37 completed weeks of gestation). Furthermore, the incidence of inductions more than doubled from 1990-2003 among the largest racial and ethnic groups (Non-Hispanic White, American Indian, Non-Hispanic Black, Asian or Pacific Islander and Hispanic). However, rates among each of these groups vary widely¹.

It has been hypothesized that increased induction rates are primarily due to the increased rate of elective inductions, that is inductions with no medical or obstetric indication. They may also contribute to the observed increase in the primary cesarean section rate. One recent study found a 25% rate of inductions with no obvious medical indication². Elective inductions may drive an increase in cesarean sections^{3, 4, 5}, without regard to parity, particularly in the presence of an unfavorable cervix⁶. An analysis of a large (11,848 patients) birth certificate database of low-risk women was done comparing elective medical inductions and spontaneous labor according to associated factors and outcomes. In the induction group, there were more intrapartum interventions, more operative deliveries and maternal length of stay was increased.⁹ Another study looking at hospital care costs compared different methods of delivery for 27,614 women, of whom 5,233 were induced. Operative delivery occurred more frequently in the induction group and delivery costs associated with induction were almost 14% higher than all other methods of delivery.¹⁰

The indications for induction of labor for the woman at term include post-dates pregnancy, preeclampsia, diabetes mellitus, oligohydramnios, intrauterine fetal growth restriction and abnormal antepartum test results⁷. Cervical readiness assessment (Bishop score) may predict successful vaginal delivery outcomes. A Bishop score of more than 8 carries with it a similar probability of a successful vaginal delivery following induction as that following a trial of spontaneous labor.⁷ Other factors affecting the likelihood of successful induction include: parity^{6,12}, initial cervical dilatation and gestational age at entry to induction⁶, pre-induction cervical ripening⁵, body mass index,

height¹¹ and ultrasonic transvaginal cervical length^{11,12}. The patient contemplating elective induction of labor should be advised of the potential risks for maternal morbidity and mortality (including hemorrhage, infection, and uterine hyperstimulation), accompanying this procedure. Prior to an elective induction, the patient should be a part of the decision making process^{13,14}.

Pharmacologic Agents

Extra-amnionic pharmacologic agents in the form of prostaglandin compounds can be used to increase cervical effacement and dilatation and to stimulate uterine contractions. Dinoprostone is a long-standing, pre-induction, cervical ripening agent. It currently is the only preparation approved by the Food and Drug Administration (FDA) for this purpose¹⁵. The drug does have significant disadvantages, of which cost is a major consideration¹⁸. The price of a single 100 microgram Misoprostol tablet can be from \$0.36 to \$2.45¹⁸. This compares with \$65 to \$75 dinoprostone gel kit⁷. This drug also requires refrigeration prior to use, an additional barrier. Finally, many patients may also require oxytocin augmentation, compounding to cost of care⁸.

Misoprostol is a viable treatment alternative. Though it enjoys wide distribution in the United States and abroad, it is not licensed for labor induction, nor is it FDA approved for use as a cervical ripening or labor induction agent, making its continued use controversial. Its FDA-approved labeling is for use with intestinal ulcer disease for its non-steroidal anti-inflammation properties¹⁵.

That vaginally-applied Misoprostol is an effective cervical ripening agent in term pregnancies has been validated in multiple trials. Optimal dose, regimen and route of administration are not clearly established⁷. In terms of cost, Misoprostol is a very attractive product as discussed earlier. It requires no refrigeration or freezing. Misoprostol is marketed as both a 100 microgram, unscored and a 200 microgram, scored tablet. Taken orally, it is rapidly metabolized in the liver to misoprostol acid with a peak plasma level at about 30 minutes, declining rapidly afterward¹⁶. With vaginal administration, peak concentrations are reduced, time to peak concentration is one to two hours and there is more area under the Misoprostol concentration verses time curve,

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creating longer exposure time to the drug than when it is administered orally^{16,17}. The gastrointestinal side effects reported with oral administration of Misoprostol are not present in the vaginal use of the drug. Local effect on the reproductive tract is increased⁸. The likelihood of drug error if the incorrect tablet is used is increased because Misoprostol is available in 100 and 200 microgram preparations and the 100. microgram tablet is not scored. A pharmacist should prepare the correct dose. Education of both clinical and pharmacy staff are key to protecting patient safety.

Conclusion

Induction of labor significantly impacts both outcomes and the cost associated with delivery. Carefully planned discussions between the primary healthcare provider and the pregnant woman with her significant other can help assure full understanding of the risks, benefits and alternative approaches of proposed interventions¹⁹.

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PERINATAL & NEONATAL AGREEMENTS FOR PROVISION OF CARE GATEWAY TO QUALITY

We all want to provide the very best to our patients and community. In order for hospital providers and systems of care to best serve pregnant women and newborns, mechanisms must be in place to coordinate the seamless coordination of consultation, referral and transfer of care as needs arise. This coordination is the basis of perinatal regionalization and ensures quality of care be implemented for maternal and newborn services.

Requirements for this coordination are steeped in tradition, legislation and in standards of care. Title 22: Licensing and Certification of Health Facilities, Home Health Agencies, Clinics and Referral Agencies states: *"A perinatal unit shall have formal arrangements for consultation and/or transfer of an infant to an intensive care newborn nursery, or a mother to a hospital with the necessary services, for problems beyond the capability of the perinatal unit"* [Title 22, 70547 (a)(4)].

For hospitals that have perinatal units, transport agreements should be in place between hospitals to address maternal, neonatal and back or return transport. These agreements are more than signed paper. They are the foundation of the delineation of roles and responsibilities that dictate quality of care for pregnant women and newborns. These transfer / transport agreements need to exist for primary care (low-risk obstetrical and newborn services) facilities as well as for hospitals providing specialty services that might need the expertise at another higher level of care facility.

Title 22 emphasizes the need for maintaining working relationships between referring perinatal units and intensive newborn nurseries. Communication between providers is critically important as is the provision of education. Title 22 stresses the importance of the receiving unit providing joint staff conferences and continuing education for perinatal and neonatal care.

Regional Cooperation Agreements (RCA) must be in place for all hospitals who have neonatal intensive care units (NICUs) designated by the California Children's Services (CCS) as either an Intermediate, Community or Regional Center. The RCA is one component of the CCS standards which impacts quality of care by requiring 1) joint education and training of perinatal health professionals, 2) joint development of guidelines for consultation by perinatal, neonatal and other specialty disciplines as indicated, 3) joint development of guidelines for maternal and neonatal patient referral and transport to and from each facility/NICU, 4) joint identification, development and review of protocols, policies and procedures related to the care of high-risk obstetrics and neonatal patient, at least every two years and 5) joint review of outcome data at least annually.

Some hospitals will have many 'agreements' in place to ensure the availability of quality services for their patients. These agreements must be reviewed annually and remain current for the specific needs of the hospitals and the patient populations that they serve. Need more information on agreements? Contact your local RPPC Director for technical assistance and support.

Ellen Silver, RNP: Region 6, PAC/LAC

NEONATAL RESUSCITATION AND BEYOND: RESUSCITATION, STABILIZATION AND TRANSPORT WITH SPECIAL EMPHASIS ON VERY LOW

The delivery of an infant requiring resuscitation, stabilization and potentially neonatal transport is an emergency situation that requires knowledgeable, highly skilled healthcare teams performing in coordination, to ensure that each infant has optimal potential for survival and long term health. Several programs will be released this summer to support California's healthcare providers and systems to optimize the care of infants during these critical minutes and hours.

Neonatal Resuscitation Program

The Neonatal Resuscitation Program (NRP) produced by the American Academy of Pediatrics (AAP) and American Heart Association (AHA) has set the standard for resuscitation of infants in the delivery room setting for more than 20 years. In May, 2006 NRP will release the fifth edition of *Textbook of Neonatal Resuscitation*, revising standards to reflect evidence based practice recommendations and adding information on management of the preterm infant and end of life care.

The fifth edition focuses on presenting evidence-based recommendations for the management of infants at the time of delivery. There are significant refinements to procedures that will require clinical judgment and knowledge: specifically in oxygen management, ventilation devices, and intervention with free flow oxygen and endotracheal intubation. While there are relatively few changes in the skills and techniques featured in previous editions, several additional tools and equipment for use during resuscitation are discussed. This edition of the textbook features nine lessons, including two new sections: Lesson 8: Resuscitation of Babies Born Preterm; and Lesson 9: Ethics and Care at the End of Life.

Additional significant changes in the program include:

- ♦ Minor changes in the resuscitation algorithm;
- ♦ Three levels of care following resuscitation: routine care, observational care and post-resuscitation care;
- ♦ Acknowledgement that evidence is insufficient to resolve all questions about the use of supplemental oxygen
 - ♦ Term Infants: 100% oxygen can be used however lower concentrations may be just as successful. If no improvement is seen in 90 seconds when less than 100% was used to begin resuscitation advance to 100%.
 - ♦ Preterm Infants: Use an oxygen blender and pulse oximeter during resuscitation. Clinical judgment is used to select the initial oxygen concentration (between 21-100%), adjusting based on infant's response to gradually raise oxygen saturation and maintain at 90 - 95%.
- ♦ Not recommending routine intrapartum (before delivery of the shoulders) suctioning in meconium-stained infants;
- ♦ Signs of effective ventilation and chest compressions; and
- ♦ Refinement of dosing and route of administration of Epinephrine and route for Naloxone.

For more information on NRP visit:

- ♦ AAP NRP resource webpage: www.aap.org/nrp
- ♦ AAP, 2005 Instructor Update 14(2):
www.aap.org/nrp/pdf/NRPUpdateFallWinter2005.pdf
- ♦ Summary of Major Changes to 2005 AAP/AHA Emergency Cardiovascular Care Guidelines for Neonatal Resuscitation:
www.aap.org/nrp/pdf/nrp-summary.pdf
- ♦ Evidence-based worksheets from the ILCOR Neonatal Delegation: <http://www.C2005.org>

Delivery Room Management of the VLBW Infant

In addition to the general recommendations made in the latest edition of NRP, the California Quality Care Collaborative (CPQCC) will release its latest toolkit, *Delivery Room Management of the Very Low Birthweight (VLBW) Infant* on their website (www.cpqcc.org) this summer. This toolkit offers evidence to support refinements in the care of premature infants in the delivery room as well as practical tools and quality improvement materials to evaluate and improve the standard of care in individual facilities. Careful review of evidence-based practice recommendations support several key enhancements to the delivery room management of infants born weighing less than 1,500 grams (three pounds, four ounces) including:

- ♦ Strategies designed to maintain VLBW infant's temperature at 36.5°C on admission to the NICU;
- ♦ Methods for continuous monitoring during resuscitation;
- ♦ Best practices for administration of oxygen and assisted ventilation in the delivery room; and
- ♦ The use of simulation-based perinatal team training to practice protocolized, scripted multidisciplinary approach to the management of VLBW infants.

Stabilization/Pre-Transport Care

S.T.A.B.L.E.: Post Resuscitation /Pre-Transport Stabilization Care of Sick Infants (Sugar, Temperature, Airway, Blood pressure, Lab work, and Emotional support) is a complementary neonatal post-resuscitation/pre-transport stabilization educational and clinical tool that is now distributed through the AAP.

To learn more about these programs visit the websites listed or contact your Regional Perinatal Program of California. Several seminars and educational opportunities are also available.

- ♦ New NRP: Difficult Issues & Hot Topics, www.aap.org AAP Conference, October 7-10, 2006, Atlanta, Georgia
- ♦ NRP 5th Ed. Telephone Seminars, www.krm.com/app June 20, August 10 and 23, 2006; 10 am-12 noon (PT)
- ♦ Successful Strategies for Implementing Perinatal-Neonatal Practice Improvements, www.cpqcc.org CPQCC QI Workshop on July 11, 2006 in Los Angeles

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The VLBW Infant's Resuscitation Rights

You have the right to competent and effective resuscitation!

You have the right to remain warm.

You have the right to breathe on your own.

*If you are unable to breathe on your own,
you will be provided with assistance in a manner that will
optimize your blood gases and protect you from injury.*

You have the right to be monitored continuously during resuscitation.

You have the right to developmentally supportive care.

Vigorous handling or loud noises may tend to cause you injury.

Does your resuscitation team understand these rights?

Lucy Van Otterloo, RN, MSN & D. Lisa Bollman, RNC

PUBLIC POLICY

California State Legislation 2006-2007

CALIFORNIA ASSEMBLY INITIATIVES:

AB2317. Koretz: Postpartum Mood and Anxiety Disorders. Status: In suspense file Assembly Appropriations. This bill requires the Department of Health Services (DHS) to conduct the Perinatal Mood and Anxiety Disorders (PMAD) Community Awareness Campaign (CAC).

AB 2651. Jones: Newborns: hearing screening. Status: As amended. To Assembly Appropriations Committee Hearing Scheduled 5/24/06. This bill requires all licensed acute care hospitals with perinatal services to administer newborn hearing screening tests effective January 1, 2008. Allows a general acute care hospital that has licensed perinatal services that provides care to fewer than 100 births annually that does not directly provide a hearing screening test to enter into an agreement with an outpatient infant hearing screening provider certified by the Department of Health Services (DHS) to provide hearing screening tests.

AB 2742. Nava: Family planning: Medi-Cal: Family PACT program. Status: 5/3/06. In suspense file Assembly Appropriations.

AB 2818. Maze: Maternal use of narcotics: testing. Status: Failed passage 4/25/06. Reconsideration granted. This bill would require the State Department of Health Services by January 15, 2008, to develop a legal and illegal drug use surveillance program, which shall not be implemented without subsequent statutory authorization

CALIFORNIA SENATE INITIATIVES:

SB 1785. Figueroa: Human milk. Status: As amended. To Assembly Appropriations Hearing Scheduled 5/22/06. Hearings canceled at author's request. This bill exempts hospitals that permit a mother to store her own breast milk for the use of her own child from state licensing requirements, and requires those hospitals to comply with specified standards.

SB 1780. Alarcon: Health facilities: nosocomial infections. Status: As introduced. Hearings canceled at author's request. This bill would require that on and after January 1, 2008, each health facility transmit notification of a nosocomial infection to the Office of Statewide Health Planning and Development. This bill would also require that the office on or before January 1, 2009, and annually thereafter, compile this data and establish an aggregate nosocomial infection rate per health facility and transmit the aggregate nosocomial infection rate of each health facility to all applicable local health agencies.

SB 1779. Alarcon: Rural doctor incentive program. Status: To Committee on Rules. This bill would declare the intent of the Legislature to implement an incentive program to encourage doctors to practice in rural areas.

SB 1748. Figueroa: Cystic fibrosis: newborn screening. Status: As introduced. In suspense file Senate Appropriations.

SB1555. Speier: Umbilical Cord Blood Banking: education. Status: To Senate Appropriations hearing scheduled 5/22/06. This bill would require the primary prenatal provider, as defined, of a woman known to be pregnant to provide the woman, during the first prenatal visit, with information developed by the Department of Health Services (DHS) regarding the woman's options with respect to umbilical cord blood banking.

SB 1596. Runner: Nurse-Family Partnership program. Status: As introduced. In suspense file Assembly Appropriations.

SB 1615. Simitian: State agencies: collection of data: ancestry or ethnic origin. Status: As amended. On suspense file Senate Appropriations.

SB 1622. Escutia: Healthy Families Program and Medi-Cal: employee eligibility. Status: As amended. Passed Senate Appropriations. To third reading. This bill on or before January 1, 2008, requires the Department of Health Services, the Managed Risk Medical Insurance Board and the Employment Development Department to collaborate on creating a notice that selected employers must provide to employees explaining eligibility requirements for Medi-Cal and the Healthy Families Program and provides a description of how to get more information, and would require employers to provide that notice to their employees.

SB 1638. Figueroa: Midwives: supervision. Status: As amended. To Senate Appropriations hearing scheduled 5/22/06. This bill requires the Medical Board of California to create and appoint a Midwifery Advisory Council, and requires licensed midwives to make annual reports to the Office of Statewide Health Planning and Development containing specified information regarding the births the midwife assisted in delivering during the prior year.

SB 1668. Bowen: Child death: review teams. Status: As amended. Passed Senate. To Assembly. This bill provides that records exempt from disclosure to third parties pursuant to state or federal law remain exempt, with specified guidelines, from disclosure when they are in the possession of a child death review team (CDRT). This bill requires that CDRTs make available to the public, no less than once each year, findings, conclusions and recommendations of the CDRT, including specified data.

Sandy King, RPT: Region 6.1

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